

RECEIVED
APR 30 1987

DIVISION OF
OIL, GAS & MINING

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
Telephone: (801) 538-5340

NOTICE OF INTENTION TO COMMENCE MINING OPERATIONS
and
MINING AND RECLAMATION PLAN

Based on Provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Regulations and Rules of Practice and Procedures, By Order of the Board of Oil, Gas and Mining.

Mine Name: Knolls Solar Ponds Mine Plan Date: _____
File No.: ACT/_____/____ Date Received: _____
Operator: _____ DOGM Lead Reviewer: _____
Mineral(s) to be Mined: Salts from the Great Salt Lake

Please attach other sheets as needed and include cross-reference page numbers when used.

1. Name of Applicant or Company: AMAX Magnesium Corporation
Corporation (X) Partnership () Individual ()
2. Address: Permanent: 238 North 2200 West
Salt Lake City, Utah 84116
Temporary: _____

3. Company Representative: Name: Lee R. Brown
Title: Vice President, Employee Relations & Gov't Affairs
Address: See above Phone: (801) 532-1522
4. Location of Operation: County(ies) Tooele (see attached map)
Township(s): _____ Range(s): _____ Section(s): _____
Township(s): _____ Range(s): _____ Section(s): _____
Township(s): _____ Range(s): _____ Section(s): _____
5. Owner(s) of record of the surface area within the land to be affected:
Name: United States Government Address: _____
Name: State of Utah Address: _____
Name: _____ Address: _____
Name: _____ Address: _____

000103

6. Owner(s) of record of the minerals to be mined:

Name:	<u>United States Government</u>	Address:	<u></u>
Name:	<u>State of Utah</u>	Address:	<u></u>
Name:	<u></u>	Address:	<u></u>
Name:	<u></u>	Address:	<u></u>

7. Owner(s) of record of all other minerals, including oil and gas, within any part of the land to be affected:

Name:	<u>United States Government</u>	Address:	<u></u>
Name:	<u>State of Utah</u>	Address:	<u></u>
Name:	<u></u>	Address:	<u></u>

8. Have the above owners been notified in writing? (X) Yes, () No. If no, why not?

9. Have you or any other person, partnership or corporation associated with you received an approval of a Notice of Intention to Commence Mining Operations by the State of Utah for operations other than described herein? (X) Yes, () No. If yes, list all approval numbers now under surety:

Stansbury Basin Solar Ponds

10. Source of Operator's legal right to enter and conduct operations on the land to be covered by this Notice:

Bureau of Land Management Right-of-Way
Tooele County Conditional Use Permit

11. Give the names and mailing addresses of every principal Executive, Office, Partner (or person performing a similar function) of Applicant:

	Name	Title	Address
A.	<u>AMAX Magnesium</u>	<u></u>	<u>238 North 2200 West</u>
B.	<u></u>	<u></u>	<u>Salt Lake City, Utah 84116</u>
C.	<u></u>	<u></u>	<u></u>
D.	<u></u>	<u></u>	<u></u>

12. Has the Applicant, any subsidiary or affiliate or any person, partnership, association, trust or corporation controlled by or under common control with the Applicant, or any person required to be identified by Item 11 ever had an approval of a Notice of Intention to Mine or Explore withdrawn or has surety relating thereto ever been forfeited? () Yes, (X) No.

If yes, please explain: _____

Please note: Section 40-8-13 of the Act provides that information relating to the location, size or nature of the deposit, and marked confidential by the Operator, shall be protected as confidential information by the Board and the Division and not be a matter of public record in the absence of a written release from the Operator, or until the mining operation has been terminated as provided in Subsection (2) of Section 40-8-21 of the Act. This material should be so marked and included on separate cross-referenced sheets.

13. All maps and plans prepared for submission shall be of adequate scale and detail to show topographic features and clearly indicate the following details:

- A. Location and delineation of the extent of the land previously affected, as well as the proposed surface disturbance.
- B. Existing active or inactive, underground or surface mined areas.
- C. Boundaries of surface properties, including ownership.
- D. Names and locations of:
 - (1) Lakes, rivers, streams, creeks and springs.
 - (2) Roads, highways and buildings.
 - (3) Active or abandoned facilities.
 - (4) Transmission lines within 500 feet of the exterior limits of land affected.
 - (5) Gas and/or oil pipelines.
 - (6) Site elevation.
- E. Drainage patterns of land affected:
 - (1) Overburden or topsoil removal and storage areas.
 - (2) Areas susceptible to erosion.
 - (3) Natural waterways.
 - (4) Constructed drainages, diversions, berms and sediment ponds (design calculations shall be included).
 - (5) Receiving waters (State Health classification).
 - (6) Directional flow of all surface waters (indicated by arrows).
- F. Known drill holes:
 - (1) Location.
 - (2) Status.

- (3) Depths and thicknesses of:*
- Water bearing strata.
 - Mineral deposits.
 - Toxic or potentially toxic materials.
 - Surficial or plant supporting material (topsoil and subsoil).
- G. Locations of disposal and stockpile areas:
- Topsoil and subsoil storage areas.
 - Overburden storage area.
 - Waste, tailings, rejected materials.
 - Raw ore stockpile(s).
 - Tailings-ponds and other sediment control structures.
 - Discharge points, water effluents (see #15[D]).

All maps should have a color code or other suitable legend used in preparation to clearly indicate surface features of the land affected. A general reference map completed on a 7.5 (1:24,000) USGS quadrangle sheet is recommended with additional large scale maps included for practical delineation of individual facilities, (e.g., 1:200, 1:500).

14. Acreage to be disturbed:

- A. Minesite (operating, storage, disposal areas, etc.): 54,000 Acres (Total system)
- B. Access/haul roads/conveyors: 170 Acres
- C. Associated on-site processing facilities: Not applicable

15. Describe mining method to be employed, including:

- A. Mining sequence:
- Map delineating the yearly sequential disturbance (if surface mine) and/or surficial disturbance.
 - Narrative (including on-site processing or mineral treatment):
Refer to draft Environmental Assessment (Pages 2 - 11)

Attach supplemental sheets and/or diagrams as necessary with cross reference to page number here: _____.

*Stratigraphic or lithologic logs if correlated to footage depths may be presented when labeled (maps or logs should be labeled confidential, if so desired).

000106

B. If sedimentary deposit seam(s): None

(1) Thickness(es): _____

(2) Dip: _____

(3) Outcrop: _____

C. Will any underground workings or aquifers be encountered? () Yes, (X) No. If yes, describe potential impacts and protection measures to be taken: _____

D. Describe any active discharge or proposed discharge of water from mine or site area. Include water quality data and lab test reports. If attached sheets or reports are included, cross reference to page number here: _____

None

16. Have all necessary water rights been appropriated? (X) Yes, () No. How will water be obtained? Please explain: Rights received from State Division of Natural Resources (Water Rights) 16-751 (A62231)

17. Proposed or estimated duration of mining operation: 19 years
Will the permit term be for a lesser amount of time, subject to review? (e.g., for surety estimate reasons). (X) Yes, () No. If yes, how long? 5 years

18. Describe the construction and maintenance of access roads including:

A. Procedures (drainage and erosion control methods).

B. Cross section(s).

C. Profile(s) of proposed road grade(s).

See draft Environmental Assessment (Pages 12 - 13).

Construction drawings are provided.

Roadways will be graded and crowned to provide proper drainage.

Drainage crossings will be constructed using best judgement.

See drawing RA-908-22.

Attach supplemental diagrams and cross reference to page number here: _____

19. Prior land use(s): Uninhabitable lake basin, not usable for grazing or agriculture.
Current land use(s): Same.
Possible projected or prospective future land use(s): Same.

000107

20. Describe methods of tree and brush removal: There are no trees, only small brush, grasses and weeds; therefore, we plan to clear and grub, then strip the topsoil and stockpile nearby for future reclamation in the clay borrow areas (i.e. borrow sites 4, 5, and 6).

Provide estimate of, and method of obtaining existing vegetation cover (%): Vegetative cover will be determined by method specified by the Division of Oil, Gas and Mining.

What types of dominant vegetation are present? Refer to draft Environmental Assessment (Pages 29 - 31).

Photographs and/or maps may be attached to these forms, cross reference to page number here: _____.

21. Soils (surficial plant supportive material) and overburden: Except where slope or rocky terrain make it impossible, all surficial materials suitable as a growth medium shall be removed, segregated and stockpiled according to its ability to support vegetation (as determined by soil analysis and/or practical revegetation experience) prior to any major excavation. (Suggested minimum requirements are the top six inches, or the "A" horizon, whichever is larger.)

- A. What is the pH range of the soil before mining? Not determined-alkaline.
Name of person or agency and method of determining pH: _____

Attach lab report if available. Cross reference page number here: _____.

- B. Average depth of topsoil and subsoil to be stripped and stockpiled: _____
Calculated volume of soil to be stockpiled: _____

1,000,000 cubic yds.

- C. Describe the method for removing and stockpiling topsoil and subsoil, including measures to protect topsoil from wind and water erosion, compaction and pollutants: Soil will be moved by graders into the topsoil storage area. Since area reclaimed is only 40% of the original disturbed area, topsoil resurfacing will be at least 12-15" in depth short term stockpile. No erosion protection required.

- D. Describe the method for removing and stockpiling overburden. Describe and discuss the acidity or alkalinity (pH) or other characteristics which would affect revegetation: Overburden will be moved aside by grader and refilled immediately after clay removal.

- E. Rock subjected to processing such as waste rock, tailings, etc., and which is to be disposed of on- or off-site must be subjected to a toxicity analysis. The method of determination, results and suitable disposal methods must be explained in detail, including means for containment and long range stability*: Not applicable - there are no ore residues from this operation.

22. Describe the methods used to minimize public safety and welfare hazards during and after mining operations including:

- A. Shaft, tunnel and drill hole closure.
- B. Disposal of trash, scrap metal and wood and extraneous debris, waste oil and solvents, unusable buildings and foundations, sewage and other materials incident to mining.
- C. Posting of appropriate warning signs and/or fences or berms to act as barriers (e.g., above highwalls) in locations where public access is available.
 - No shaft, tunnel or drill holes.
 - All trash, scrap metal and other debris will be hauled to a state approved landfill during and after operations.
 - Spent oil and solvents will be hauled to a reclamation facility during and after operations.
 - Sewage will be hauled to an appropriate sewage disposal facility during operations.
 - All waste products will be handled in accordance with county, state and federal regulations.
 - Buildings, foundations and other superstructures will be demolished and buried on site at completion of operations.
 - Warning signs will be posted and access roads restricted to company traffic.

*"Toxic" means any chemical or biological or adverse characteristic of the material involved which could reasonably be expected to negatively affect ecological or hydrological systems or could be hazardous to the public safety and welfare.

000109

23. Grading and soil redistribution.

- A. Attach pre- and postmining contour cross sections, typical of regrading designs. Cross reference to page number here: See map RA-908-22.
- B. Describe the method(s) of overburden replacement and stabilization and highwall elimination, including: (a) slope factors; (b) lift heights; (c) compaction; (d) terracing, etc., (e) also include testing procedures: Refer to 21D.

- C. What method of spreading topsoil and subsoil or upper horizon material on the regraded area will be employed? Bulldozers and graders.

1. Indicate the approximate depth of soil cover after final surfacing 12 - 15 inches.
2. What tests will be performed to adequately evaluate the potential of the soil to successfully support intended revegetation? None. Topsoil will be reused.

3. What soil amendments or fertilizers will be needed as an aid to revegetation?

Type: <u>None.</u>	Rate: _____
Type: _____	Rate: _____
Type: _____	Rate: _____

4. What additional surface preparations will be used? Describe (a) drainage, erosion and sediment control measures; (b) maximum slope characteristics; and (c) highwall reclamation.

A 1% grade will be provided on clay borrow areas to insure proper drainage. Standard engineering design used in haulage road designs.

5. Describe methods which may be particularly applicable to waste disposal areas determined to be potential problem areas.

Not applicable.

- D. Describe plans for either leaving or reclaiming the roads and pads associated with the operation.

Pads will be demolished and buried. Haulage roads and access roads west of the existing BLM road that runs N-S from the frontage road to borrow pit no. 1 will be reclaimed in a manner that restricts vehicle access. The other haulage roads will be left intact.

24. Impoundments: All evaporation, tailings and sediment ponds; spoil piles, fills, pads and regraded areas shall be self-draining and nonimpounding when abandoned unless previously approved as an impounding facility by a lawful state or federal agency. In view of this, please describe the reclamation of all related areas in the operation and include pertinent items enumerated in C, 1-5 above.

Dikes will be breached enough to allow drainage of the solar ponding area. Feed canals will be refilled.

25. Revegetation plans:

- A. What organization, agency or person will specifically be performing the revegetation? AMAX Magnesium
- B. Will the affected area be subject to livestock or wildlife grazing?
() Yes, (X) No. Will vegetation protection be needed to allow for a determination of the successful revegetation criteria outlined in the Mined Land Reclamation Act, Rule M-10(12)? () Yes, (X) No. If yes, what measures will the operator take?
- C. Will irrigation be used? () Yes, (X) No. Type: _____
_____. For how long? _____.

- D. Test plots initiated during the early stages of mine development provide good bases from which a successful revegetation program can be adapted for later implementation. Will test plots be employed? () Yes, (X) No. If yes, describe on an additional sheet(s) and attach. Cross reference page number here and show location on facilities map: _____.
- E. Please attach a revegetation plan and schedule including:
1. Species to be used. AMAX Magnesium agrees to the
 2. Rate of seed application/acre. reclamation recommendations as
 3. Season to be planted. specified in the Environmental
 4. Seedbed preparation techniques. Assessment.
 5. Planting location, slope face direction, variability, method of application, covering, etc.
 6. Mulch and fertilizer application, if used.
- F. Describe any other maintenance procedures which may be used, if needed, to guarantee successful revegetation: None.

26. Please provide a reclamation schedule including:

- A. Estimated time for construction. See attached Reclamation Schedule.
- B. Estimated time for interim reclamation.
- C. Estimated duration of the mining operation.
- D. A time table for the accomplishment of each major step in the reclamation plans. Attach the schedule and cross reference to the page number here: _____.

27. A surety guarantee must be provided for the mining operation (see Rule M-5 Mined Land Reclamation Act). In calculating this amount, the Division will consider the following major steps based on the information provided in this report:

- A. Clean up and removal of structures.
- B. Backfilling, grading and contouring.
- C. Topsoil and subsoil redistribution and stabilization.
- D. Revegetation (i.e., preparation, seeding, mulching, irrigation).
- E. Labor.
- F. Safety and fencing.
- G. Monitoring, and reseeding if necessary.

To assist the Division, the operator may attach a list of costs and factors which would satisfy these areas. Substantiation of these factors, i.e., unit costs and how they are derived, should accompany the list. Cross reference the page number here: _____.

28. A request for a variance from specific commitments to Rule M-10 (Reclamation Standards) of the Mined Land Reclamation Act may be submitted with adequate written justification. If after presentation of information adequately detailing the situation, a determination is made that finds a portion of the rule inapplicable, a variance may be granted by the Division.

000112

I hereby commit the applicant to comply with Rule M-10, "Reclamation Standards" in its entirety, as adopted by the Board of Oil, Gas and Mining on March 22, 1978.

The applicant will achieve the reclamation standards for the following categories as outlined in Rule M-10 on all areas of land affected by this mine, unless a variance is granted in writing by the Division.

<u>Rule</u>	<u>Category of Commitment</u>	<u>Variance Requested?</u>
M-10(1)	Land Use	_____
M-10(2)	Public Safety and Welfare	_____
M-10(3)	Impoundments	_____
M-10(4)	Slopes	_____
M-10(5)	Highwalls	_____
M-10(6)	Toxic Materials	_____
M-10(7)	Roads and Pads	Yes _____
M-10(8)	Drainages	_____
M-10(9)	Structures and Equipment	_____
M-10(10)	Shafts and Portals	_____
M-10(11)	Sediment Control	_____
M-10(12)	Revegetation	Yes _____
M-10(13)	Dams	Yes _____
M-10(14)	Soils	Yes _____

I believe a variance is justified on a site-specific basis for the previous subsections of Rule M-10 as indicated. A narrative statement explaining these concerns is attached.

STATE OF Utah

COUNTY OF Touche

I, Lee R. Brown, having been duly sworn depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: Lee R. Brown

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 30th day of April, 1987.

Notary Public: Elizabeth Silva

My Commission Expires: Oct. 17, 1990

000113

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.

Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: () Yes (X) No

MINE MAPS

1. Maps must be clear and legible contour maps or recent aerial photos. The scale should be 1 inch = 500 feet to adequately show topographic features.
2. Map sheets should be of a reasonable size, not to exceed 48 inches on a side.
3. Maps must have a title block with:
 - A. Map title.
 - B. Name and address of permittee.
 - C. Permit and amendment numbers.
 - D. Annual report period.
 - E. Scale, north arrow, contour interval, date of photography, etc.
4. All maps must show:
 - A. Legal subdivisions.
 - B. Permit area boundary clearly shown and labelled.
 - C. Amendment areas clearly shown and labelled.
 - D. Contour features.
5. The following features should all be clearly identified:
 - A. Topsoil stockpiles (numbered and with volumes).
 - B. Settling ponds and sediment control structures.
 - C. Haul roads.
 - D. Pits identified by location, name, number, etc.
 - E. Ramps (numbered).
 - F. Out-of-pit spoil dumps.
 - G. All waste disposal sites including, but not limited to:
 1. Landfill sites.
 2. Carbonaceous waste dumps.
 - H. Diversion ditches.
 - I. Monitoring sites.

VARIANCE REQUEST

4/29/87

Roads and Pads

A partial variance is requested from rule M-10 (7). Haul roads east of the USPCI road will be left intact at the request of the BLM. Haul roads west of the USPCI road will be reclaimed in a manner than insures proper drainage and restricts vehicular traffic. Reseeding will be completed on haulage road areas that were previously vegetated (i.e. dune areas, not mud flats).

Revegetation

Rule M-10 (12) specifies "where possible, a self sustaining vegetative cover consisting of non-noxious plants shall be established by the operator subsequent to final grading on the entire area affected". This KSEPS facility disturbs little vegetated area and most of the vegetated area disturbed is extremely sparse in vegetation (<5%) or will be completely covered by salt deposits at the end of the project. The exceptions to this are the clay borrow areas. A variance is therefore requested to require revegetation only in the clay borrow areas not covered by salt and on haulage road areas that were previously vegetated.

Note that approximately 60% of borrow areas 5 and 6 will be covered by salt at the end of the project and only the balance of the disturbed area could be reasonably expected to be revegetated.

Dams

A variance is requested from rule M-10 (13). The outer dikes used in solar evaporation will provide a method of containing a valuable mineral deposit after this project is complete. It is better to leave them in place. The outer dikes will be breached in several locations in order to insure adequate drainage off of the salt flats. It is recognized that additional reclamation of the dikes may be required by the BLM and DOGM at project completion. The inner dikes, however, will be graded down to conform to the natural salt deposition contours.

Soils

A variance is requested from rule M-10 (14). Topsoils will be removed, segregated and stockpiled in the clay borrow areas and haulage road areas, and redistributed upon completion of the project on areas that have not been covered by salt deposition. Since other areas that are disturbed will be covered by salt deposition, topsoils will not be conserved.

000100

RECLAMATION REQUIREMENTS

These requirements are for the solar pond project itself and do not include associated gravel pits or the plant feed pipeline.

Structures

- a) One maintenance and office building, approximately 10,000 ft². Sheet metal construction, unfinished interior, on concrete pad.
- b) 18 - 20 concrete pads for pumps and generators.
- c) Removal of pumps and associated piping.

Topsoil and Revegetation

Approximately 100 acres of lands with more than 5% vegetation will be disturbed. Topsoil will have to be stockpiled, refilled, and replanted at the end of the project.

Roads

Approximately 15 miles of haulage and access roads will be constructed.

PROJECT SCHEDULE

Construction 6 months beginning June 1, 1987

Project Life 15 - 19 years

Reclamation Approximately 1 - 2 years

- a) Structures removed in the first 6 months
- b) Revegetation over a 2 year period

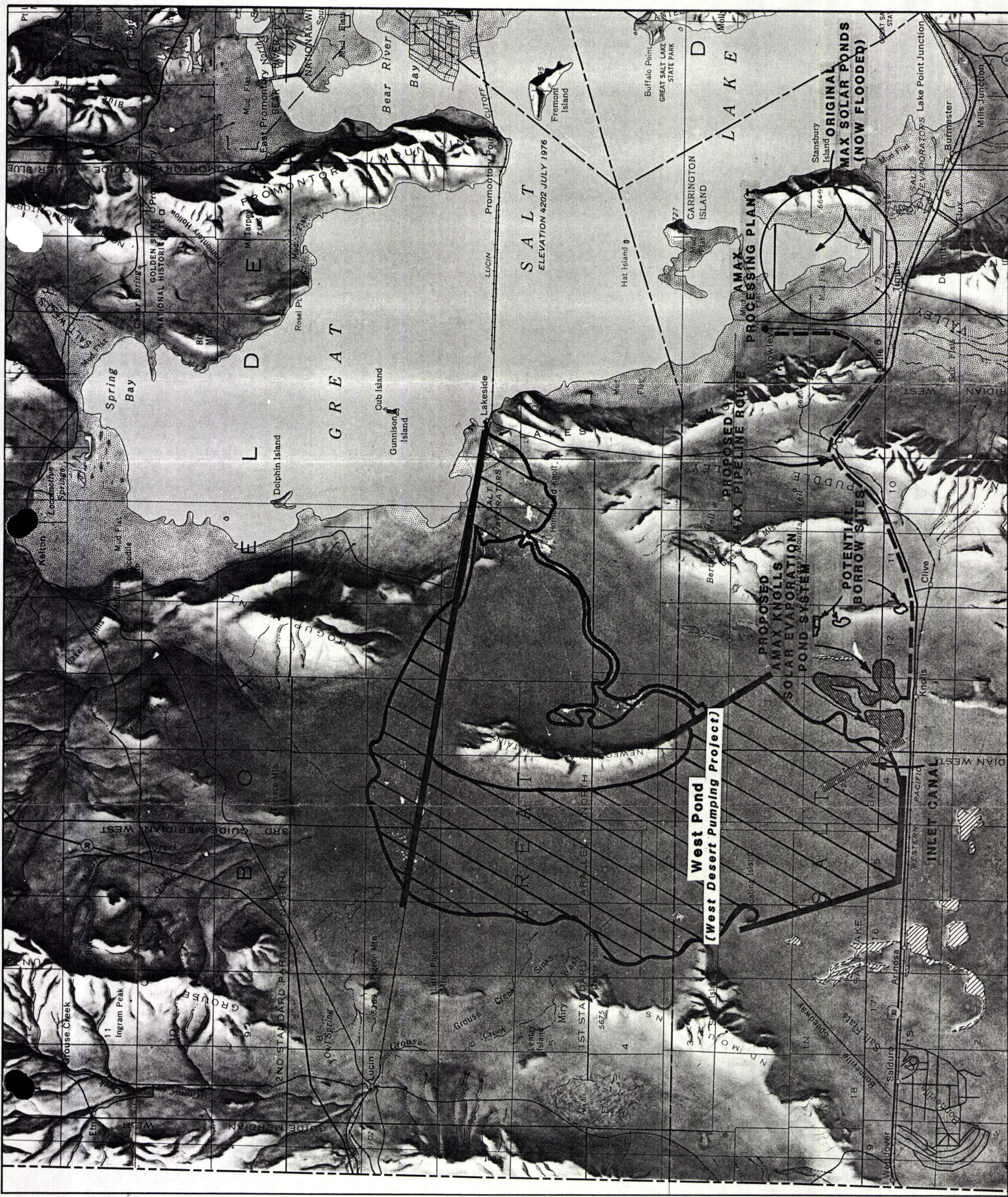


FIGURE 2.
Proposed Knolls Solar Evaporation Pond System.

